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Term: 14 and bovine

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DB Name	Query	Hit Count	Set Name
ALL	l4 and bovine	53	L8
ALL	l4 and gamma?	3	L7
ALL	l4 and gamma? like	0	L6
ALL	l4 and orphan	0	L5
ALL	l3 and ((gamma chain)or gamma-c)	77	L4
ALL	l2 or l1	1286	L3
ALL	Il-2 receptor	837	L2
ALL	Interleukin 2 receptor	645	L1

FILE 'MEDLINE' ENTERED AT 16:15:38 ON 27 DEC 1999

FILE 'BIOSIS' ENTERED AT 16:15:38 ON 27 DEC 1999
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=> s (interleukin 2 receptor) or (IL-2 receptor)

L1 14063 (INTERLEUKIN 2 RECEPTOR) OR (IL-2 RECEPTOR)

=> l1 and gamma chain

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=> s l1 and gamma chain'

MISMATCHED QUOTE 'CHAIN''
Quotation marks (or apostrophes) must be used in pairs,
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=> s l1 and gamma chain

L2 412 L1 AND GAMMA CHAIN

=> s l2 and orphan

L3 0 L2 AND ORPHAN

=> s l2 and like

L4 27 L2 AND LIKE

=> s l4 py<1999

MISSING OPERATOR L4 PY<1999
The search profile that was entered contains terms or
nested terms that are not separated by a logical operator.

=> d bib abs 15-27

L4 ANSWER 15 OF 27 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1997:340515 BIOSIS
DN PREV199799639718
TI IL-15 is chemotactic for natural killer cells and stimulates their adhesion to vascular endothelium.
AU Allavena, P. (1); Giardina, G.; Bianchi, G.; Mantovani, A.
CS (1) Ist. Ricerche Farmacologiche Mario Negri, Via Eritrea 62, 20157 Milan Italy
SO Journal of Leukocyte Biology, (1997) Vol. 61, No. 6, pp. 729-735. ISSN: 0741-5400.
DT Article
LA English
AB Interleukin-15 (IL-15) is a recently described cytokine with IL-2-**like** stimulating activities on T lymphocytes and natural killer (NK) cells. IL-15 mediates its function through the beta- and gamma-chains

of the **IL-2 receptor**. In this work, we have investigated the effect of IL-15 on the directional migration of NK cells in chemotaxis assays and on the ability of NK cells to bind to vascular endothelium. IL-15 (10-20 ng/mL) had chemotactic effects on freshly isolated resting NK cells as well as on long-termed IL-2-cultured NK cells. A checkerboard experiment demonstrated that migration in response to IL-15 was observed only in the presence of a positive gradient (chemotaxis). Overnight treatment of freshly isolated NK cells with IL-15 (10-20 ng/mL) augmented their binding to cultured endothelial cells (EC) in vitro, especially to resting EC. IL-15-activated NK cells bound to resting and tumor necrosis factor-activated EC by use of LFA-1/ICAM-1 and VLA-4/VCAM-1 adhesion pathways, essentially as untreated NK cells do. The fact that IL-15 increased NK cell binding to ICAM-1-transfected NIH-3T3 fibroblasts, together with the finding that IL-15 did not increase binding to extracellular matrix proteins, where the major molecules involved are VLA proteins, indicated that IL-15 primarily stimulates LFA-1-dependent adhesion. By increasing NK cell adhesion to vascular endothelium and migratory response, IL-15 is an important determinant of NK cell recruitment in tissues.

L4 ANSWER 16 OF 27 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1997:273844 BIOSIS
DN PREV199799565562
TI Chromosome mapping and expression of the human interleukin-13 receptor.
AU Guo, Jia; Apiou, Francoise; Mellerin, Marie-Paule; Lebeau, Benoit; Jacques, Yannick; Minvielle, Stephane (1)
CS (1) Unite INSERM 211, Inst. de Biologie, CHR de Nantes, 9 Quai Moncousu, 44035 Nantes Cedex 01 France
SO Genomics, (1997) Vol. 42, No. 1, pp. 141-145.
ISSN: 0888-7543.
DT Article
LA English
AB Interleukin-13 (IL-13) is a cytokine secreted by activated T cells and shares most but not all biological activities with interleukin-4 (IL-4). Both cytokines play an important role as a switch factor directing synthesis of IgE; they act on monocytes and endothelial cells, but unlike IL-4, IL-13 does not act on T cells. These cytokines have both common and distinct components in their respective receptors. Based on sequence similarity shared by cytokine receptor family members, we have identified a cDNA encoding the human IL-13 receptor (IL-13R). This cDNA was used to examine the pattern of IL-13R mRNA expression by Northern blot analyses of poly(A)+ RNA purified from different human tissues and cell lines. Among several myeloma cell lines analyzed, the U266 cell line was the only one found to express IL-13R transcripts. This cell line is also the only one described as producing IgE. The IL-13R gene was mapped to chromosome Xq24 by in situ hybridization. Interestingly, this locus is near that of the CD40 ligand gene, the product of which is also involved, **like** IL-13, in proliferation and IgE isotype switching of human B cells. The human IL-13R gene maps between two cytokine receptor genes located on the chromosome arm Xq region: the **interleukin-2 receptor gamma chain** gene (Xq13.1) and the interleukin-9 receptor gene (Xq28). The lack of nucleotide sequence similarity suggests unrelated evolutionary pathways between these receptor genes.

L4 ANSWER 17 OF 27 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1996:375922 BIOSIS
DN PREV199699098278
TI Regulation of **interleukin-2 receptor gamma chain** mRNA expression in human monocytic cell line THP-1.
AU Yanai, Hiroyuki; Yoshino, Tadashi; Takahashi, Kiyoshi; Ninomiya, Yoshifumi; Akagi, Tadaatsu (1)

CS (1) Dep. Patho[redacted]y, Okayama Univ. Med. Sch., Oka[redacted]ma 700 Japan
SO Acta Medica Oka[redacted]ma, (1996) Vol. 50, No. 3, pp. [redacted]-150.
ISSN: 0386-300X.
DT Article
LA English
AB The **interleukin-2 receptor** (IL-2R) **gamma chain** (gamma-c chain) is shared by IL-4R, IL-7R, IL-9R, and IL-15R and plays an important role in regulation of the immune system. However, its regulation in monocytic cell lines has not been well clarified. We examined the expression and regulation of the IL-2R-alpha, IL-2R-beta, gamma-c chain, IL-4R and IL-7R mRNA in a human monoblastic leukemia cell line, THP-1. Unstimulated THP-1 cells constitutively expressed a low level of gamma-c chain and IL-4R mRNA. Phorbol myristate acetate (PMA) induced macrophage-**like** differentiation and up-regulated the gamma-c chain mRNA expression in THP-1 cells. This effect of PMA was suppressed by the protein kinase inhibitors H-7 and staurosporine. PMA did not affect the expression of the other IL-R mRNAs examined. 1-alpha, 25(OH)-2D-3 and interferon-gamma also induced differentiation of THP-1 cells, but these reagents did not affect the expression of the IL-R mRNAs in THP-1 cells. These findings suggest that the expression of the gamma-c chain mRNA is regulated by the PMA-dependent pathway and is not associated with that of the other IL-R mRNAs.

L4 ANSWER 18 OF 27 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1996:284202 BIOSIS
DN PREV199699006558
TI IL-15 induces the release of soluble IL-2R-alpha from human peripheral blood mononuclear cells.
AU Treiber-Held, Stephanie; Stewart, Donn M.; Kurman, Carole C.; Nelson, David L.
CS Immunophysiology Sect., Metabolism Branch, Natl. Cancer Inst., Natl. Inst. Health, Bethesda, MD 20982 USA
SO Clinical Immunology and Immunopathology, (1996) Vol. 79, No. 1, pp. 71-78.
ISSN: 0090-1229.
DT Article
LA English
AB The recently identified and cloned cytokine IL-15 shares many of the T-cell and B-cell stimulatory activities of IL-2 and utilizes the beta and gamma chains of the IL-2R for binding and signaling. The present report shows that, **like** IL-2, IL-15 in a concentration and time-dependent manner causes the release of sIL-2R-alpha from PHA-activated human peripheral blood mononuclear cells. This effect of IL-15 is largely direct and independent of IL-2. Blocking of the IL-2R-beta chain with the antibody Mik-beta-1 prevented the release of sIL-2R-alpha by IL-15 but not by IL-2. IL-7, another cytokine utilizing the **gamma chain** of the IL-2R, drove the release of sIL-2R-alpha as well. Several clinical conditions are associated with abnormal serum sIL-2R-alpha levels and are also monitored by the measurement of sIL-2R-alpha. The reason for sIL-2R-alpha release is not fully understood. In this study, IL-15, **like** IL-2 was shown to be a potent inducer of sIL-2R-alpha release in vitro.

L4 ANSWER 19 OF 27 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1996:281736 BIOSIS
DN PREV199699004092
TI Growth inhibition signalled through the interleukin-4/interleukin-13 receptor complex is associated with tyrosine phosphorylation of insulin receptor substrate-1.
AU Schnyder, Bruno; Lahm, Harald; Woerly, Gaetane; Odartchenko, Nicolas; Ryffel, Bernhard; Car, Bruce D. (1)
CS (1) DuPont Merck Res. Dev., Stine-Haskell Res. Cent., Build. 320, PO Box

30, Newark, DE [redacted]14-0030 USA
SO Biochemical Jou[redacted]1, (1996) Vol. 315, No. 3, pp. [redacted]7-774.
ISSN: 0264-6021.
DT Article
LA English
AB Induction of growth inhibition in human colorectal carcinoma cell lines by interleukin (IL)-4 and IL-13 was associated with the neophosphorylation of a 170 kDa cellular protein, identified as insulin receptor substrate-1 (IRS-1) by immunoprecipitation. Tyrosine phosphorylation of IRS-1 was also induced by insulin and insulin-**like** growth factor 1. Sublines of colorectal carcinoma cells unresponsive to growth modulation by IL-4, IL-13 or insulin-**like** growth factor 1-induced growth did not phosphorylate IRS-1. A functional, multimeric IL-4 receptor complex was present on all carcinoma cell lines with a subunit composition of 65 kDa, 75 kDa and the previously characterized 130 kDa band as demonstrated by affinity cross-linking with 125I-labelled IL-4. The 65 kDa subunit is novel whereas the 75 kDa band represents the common **IL-2 receptor gamma-chain**. The novel 65 kDa receptor was present as a double band and bound primarily 125I-labelled IL-13. The present study demonstrates the involvement of a novel chain other than the **gamma-chain** in the receptor complexes of IL-4 and IL-13 and post-receptor tyrosine phosphorylation of IRS-1. The association of IRS-1 with growth inhibitory signals in carcinoma cells suggests a novel mechanism of turnout growth control.

L4 ANSWER 20 OF 27 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1996:267961 BIOSIS
DN PREV199698824090
TI Cloning of human Stat5B: Reconstitution of interleukin-2-induced Stat5A and Stat5B DNA binding activity in COS-7 cells.
AU Lin, Jian-Xin; Mietz, Judy; Modi, William S.; John, Susan; Leonard, Warren J. (1)
CS (1) Lab. Mol. Immunol., NHLBI, NIH, 9000 Rockville Pike, Bethesda, MD 20892-1674 USA
SO Journal of Biological Chemistry, (1996) Vol. 271, No. 18, pp. 10738-10744.
ISSN: 0021-9258.
DT Article
LA English
AB We have isolated a second human Stat5 cDNA, Stat5B, and demonstrated that the genes encoding both Stat5A and Stat5B are located at chromosome 17q11.2. Both genes were constitutively transcribed in peripheral blood lymphocytes. By using specific antisera, we demonstrated that both Stat5A and Stat5B are activated by interleukin-2 (IL-2) in peripheral blood lymphocytes, natural killer-**like** YT leukemia cells, and human T cell lymphotropic virus type 1-transformed MT-2 T cells. In COS-7 cells, which constitutively express the Janus family tyrosine kinase Jak1, reconstitution of IL-2-induced Stat5A and Stat5B DNA binding activities was dependent on the coexpression of Jak3 along with the **IL-2 receptor** beta chain and the common cytokine receptor **gamma-chain**. This IL-2-induced Stat5 activation was dependent on the presence of either of two tyrosines (Tyr-392 or Tyr-510) in the **IL-2 receptor** beta chain, indicating that either of these two tyrosines can serve as a docking site. Moreover, we demonstrated that human Stat5 activation is also dependent on Tyr-694 in Stat5A and Tyr-699 in Stat5B, indicating that these tyrosines are required for dimerization. The COS-7 reconstitution system described herein provides a valuable assay for further elucidation of the IL-2-activated JAK-STAT pathway.

L4 ANSWER 21 OF 27 BIOSIS COPYRIGHT 1999 BIOSIS

AN 1996:31507 BIOSIS
DN PREV19969860364
TI The insulin receptor substrate-1-related 4PS substrate but not the interleukin-2R-**gamma chain** is involved in interleukin-13-mediated signal transduction.
AU Wang, Ling-Mei (1); Michieli, Paolo; Lie, Wen-Rong; Liu, Franklin; Lee, Chong-Chou; Minty, Adrian; Sun, Xiao-Jian; Levine, Alan; White, Morris F.; Pierce, Jacalyn H.
CS (1) Lab. Cellular Molecular Biol., Natl. Cancer Inst., Build. 37, Room IE24, Bethesda, MD 20892-4255 USA
SO Blood, (1995) Vol. 86, No. 11, pp. 4218-4227.
ISSN: 0006-4971.
DT Article
LA English
AB Interleukin-13 (IL-13) induced a potent mitogenic response in IL-3-dependent TF-1 cells and DNA synthesis to a lesser extent in M07E and FDC-P1 cells. IL-13 stimulation of these lines, **like** IL-4 and insulin-**like** growth factor-1 (IGF-1), resulted in tyrosine phosphorylation of a 170-kD substrate. The tyrosine-phosphorylated 170-kD substrate strongly associated with the 85-kD subunit of phosphoinositol-3 (PI-3) kinase and with Grb-2. Anti-4PS serum readily detected the 170-kD substrate in lysates from both TF-1 and FDC-P1 cells stimulated with IL-13 or IL-4. These data provide evidence that IL-13 induces tyrosine phosphorylation of the 4PS substrate, providing an essential interface between the IL-13 receptor and signaling molecules containing SH2 domains.
IL-13 and IL-4 stimulation of murine L cell fibroblasts, which endogenously express the IL-4 receptor (IL-4Ra) and lack expression of the **IL-2 receptor** y subunit (IL-2Ry), resulted in tyrosine phosphorylation of insulin receptor substrate-1 (IRS-1)/4PS. Enhanced tyrosine phosphorylation of IRS-1/4PS was observed in response to IL-4, but not IL-13 treatment of L cells transfected with the IL-2Ry chain. These results indicate that IL-13 does not use the IL-2Ry subunit in its receptor complex and that expression of IL-2Ry enhances, but is not absolutely required for mediating IL-4-induced tyrosine phosphorylation of IRS-1/4PS.

L4 ANSWER 22 OF 27 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1995:438294 BIOSIS
DN PREV199598452594
TI DELTA-9-Tetrahydrocannabinol (THC) causes the variable expression of IL2 receptor subunits.
AU Zhu, Weigang; Igarashi, Toshihisa; Friedman, Herman; Klein, Thomas W. (1)
CS (1) Univ. S. Florida, Coll. Med., Dep. Med. Microbiol., MDC Box 10, 12901 Bruce B. Downs Blvd., Tampa, FL 33612 USA
SO Journal of Pharmacology and Experimental Therapeutics, (1995) Vol. 274, No. 2, pp. 1001-1007.
ISSN: 0022-3565.
DT Article
LA English
AB Previously, we reported that the cannabinoid DELTA-9-tetrahydrocannabinol (THC) suppressed interleukin 2 (IL2)-induced proliferation of a cloned, natural killer-**like** cell line (NKB61A2) and decreased the number of high- and intermediate-affinity IL2 binding sites. However, the surface expression of **interleukin 2 receptor** alpha (IL2R-alpha) chain, as measured by flow cytometry, was increased rather than decreased by THC treatment. This suggested that the drug-induced deficiency in IL2 binding and cell activation involved a defect in the

cell-surface expression of IL2R subunits other than the a chain. Because the IL2 receptor complex is composed of alpha, beta and gamma chains, we examined the effect of THC treatment on the expression of these chains. In a result consistent with our previous findings, we observed that treatment of NKB61A2 cells with THC increased the cellular immunoprecipitable IL2R-alpha protein (p55) and mRNA. Furthermore, the cellular production of IL2R-beta chain protein (p75) and mRNA, determined by immunoprecipitation and Northern blotting, respectively, was also increased. The mRNA stability assay showed that THC increased the stability of IL2-beta mRNA, and nuclear run-on experiments suggested that the increase in subunit production was not due to a drug effect on gene transcription. The IL2R-**gamma chain** was also affected by THC treatment in that Northern blotting studies showed a drug-induced decrease in the cellular level of **gamma chain** mRNA. In addition, THC treatment decreased the 125I-labeled IL2 internalization under high-affinity binding conditions. These results show that THC treatment of NKB61A2 cells modulates the expression of IL2R-alpha, beta and gamma chains and suggests that these effects may account at least in part for drug-induced suppression of high- and intermediate-affinity IL2 binding as well as IL2-dependent cell activation.

L4 ANSWER 23 OF 27 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1995:208579 BIOSIS
DN PREV199598222879
TI Interleukin-9 and its receptor: Involvement in mast cell differentiation and T cell oncogenesis.
AU Renauld, Jean-Christophe (1); Kermouni, Abdenaim; Vink, Anne; Louahed, Jamila; Van Snick, Jacques
CS (1) Ludwig Inst. Cancer Res., Ave. Hippocrate 74, B-1200 Brussels Belgium
SO Journal of Leukocyte Biology, (1995) Vol. 57, No. 3, pp. 353-360. ISSN: 0741-5400.
DT Article
LA English
AB Interleukin-9 (IL-9) is a multifunctional cytokine produced by activated TH2 clones in vitro and during TH2-**like** T cell responses in vivo. The IL-9 receptor is a member of the hemopoietin receptor superfamily and interacts with the **gamma chain** of the **IL-2 receptor** for signal transduction. Various observations indicate that IL-9 is actively involved in mast cell responses by inducing the proliferation and differentiation of these cells. The role of IL-9 in T cell responses is less clear. Although freshly isolated normal T cells do not respond to IL-9, this cytokine induces the proliferation of murine T cell lymphomas in vitro and in vivo overexpression of IL-9 results in the development of thymic lymphomas. In the human, the existence of an IL-9-mediated autocrine loop has been suggested for some malignancies such as Hodgkin's disease. Other potential biological targets for IL-9 include B lymphocytes, hematopoietic progenitors, and immature neuronal cell lines.

L4 ANSWER 24 OF 27 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1994:546548 BIOSIS
DN PREV199598006096
TI T Lymphocyte Development and Function in Dogs with X-Linked Severe Combined Immunodeficiency.
AU Somberg, Richard L. (1); Robinson, J. Paul; Felsburg, Peter J.
CS (1) Dep. Clin. Studies, Sch. Vet. Med., Univ. Pennsylvania, PA 19104 USA
SO Journal of Immunology, (1994) Vol. 153, No. 9, pp. 4006-4015. ISSN: 0022-1767.
DT Article
LA English

AB Canine X-linked severe combined immunodeficiency disease (XSCID) is characterized by failure to thrive, thymic dysplasia, and a lack of a T lymphocyte mitogenic response. As in human XSCID, affected dogs in our colony have a mutation in the IL-2R-gamma gene. This mutation dramatically altered T lymphocyte development, because XSCID thymi were severely reduced in size and cellularity, contained an increased proportion of immature CD4-CD8- thymocytes, a decreased proportion of intermediate CD4+CD8+ thymocytes, and a normal proportion of CD4+CD8+ and CD4-CD8+ thymocytes. XSCID thymi were also deficient in the percentage of CD3-L+ thymocytes. Interestingly, several XSCID dogs had normal percentages of CD3-L+ PBL. Although the mutation did not interfere with IL-2 production, PHA-activated XSCID PBL demonstrated severely diminished IL-2 binding and were nonresponsive to IL-2. These results indicate that the lack of a functional IL-2R-**gamma chain** in dogs with XSCID primarily affects developing CD4-CD8- thymocytes as they acquire the cell surface Ag CD3-L and interferes with the ability of peripheral T lymphocytes to bind and respond to IL-2.

L4 ANSWER 25 OF 27 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1994:494438 BIOSIS
DN PREV199497507438
TI Interleukin 2-induced activation of JAK3: Possible involvement in signal transduction for c-myc induction and cell proliferation.
AU Asao, Hironobu; Tanaka, Nobuyuki; Ishii, Naoto; Higuchi, Masaya; Takeshita, Toshikazu; Nakamura, Masataka; Shirasawa, Takuji; Sugamura, Kazuo (1)
CS (1) Dep. Microbiol., Tohoku Univ. Sch. Med., Sendai 980-77 Japan
SO FEBS Letters, (1994) Vol. 351, No. 2, pp. 201-206.
ISSN: 0014-5793.
DT Article
LA English
AB We have investigated the role of JAK3 in interleukin 2 (IL-2)-induced signal transduction with a human T cell line, ED40515(-), lacking expression of the **IL-2 receptor gamma chain** and its sublines transfected with wild-type or mutant cDNAs of the **IL-2 receptor gamma chain**. Our results demonstrated that the membrane-proximal cytoplasmic region, encompassing the src homology region 2 (SH2)-**like** subdomain, of the **gamma chain** is essential for association and activation of JAK3. Furthermore, IL-2-induced activation of JAK3 paralleled induction of the c-myc gene and DNA synthesis but not induction of the c-fos and c-jun genes. These results support the hypothesis that JAK3 plays a pivotal role in the IL-2 receptormediated signals for cell growth.

L4 ANSWER 26 OF 27 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1993:364475 BIOSIS
DN PREV199396050150
TI Characterization of the human **interleukin-2 receptor gamma chain** gene.
AU Noguchi, Masayuki; Adelstein, Stephen; Cao, Xiqing; Leonard, Warren J. (1)
CS (1) Bldg. 10, Room 7N244, NIH, Bethesda, MD 20892 USA
SO Journal of Biological Chemistry, (1993) Vol. 268, No. 18, pp. 13601-13608.
ISSN: 0021-9258.
DT Article
LA English
AB The interleukin-2 (**IL-2**) **receptor gamma chain** is an essential component of high and intermediate affinity IL-2 receptors (IL-2Rs), playing critical roles for ligand binding and internalization. We report here the isolation and characterization of the genomic locus for human IL-2R-gamma, which,

like IL-2R-beta [redacted]s a member of the cytokine rec[redacted]or superfamily. The IL-2R-gamma [redacted]ene is composed of eight exons [redacted] seven introns and spans approximately 4.2 kilobases. Analogous to the IL-2R-beta gene, the two pairs of conserved cysteines typical of cytokine receptor superfamily proteins are located in adjacent exons, and the conserved WSXWS motif is located in the exon preceding the one that encodes the transmembrane domain and a small part of the cytoplasmic domain. In each gene, the remainder of the cytoplasmic domain is encoded by the final two exons. Southern blot analysis suggests that IL-2R-gamma is encoded by a single copy gene. Cross-hybridizing sequences were detected in DNA derived from a number of other mammalian species but not from yeast. Primer extension analysis and ribonuclease protection assays revealed that there are three principal transcription initiation sites located 32-38 nucleotides 5' to the translation initiation AUG codon. These sites are upstream of the 5' end of the published IL-2R-gamma cDNA sequence. The region 5' to the transcription initiation sites exhibited promoter activity when cloned upstream of the luciferase reporter gene. With this study, the organization of the genes encoding all three chains (alpha, beta, and gamma) of the **IL-2 receptor** has been determined and promoters for each identified.

L4 ANSWER 27 OF 27 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1989:94418 BIOSIS
DN BA87:48554
TI THE HIGH AFFINITY **INTERLEUKIN 2 RECEPTOR**
EVIDENCE FOR THREE DISTINCT POLYPEPTIDE CHAINS COMPRISING THE HIGH AFFINITY **INTERLEUKIN 2 RECEPTOR**.
AU HERRMANN T; DIAMANTSTEIN T
CS INST. IMMUNOL., KLINIKUM STEGLITZ, FREIE UNIV. BERLIN, HINDENBURGDAMM 27, D-1000 BERLIN, FRG.
SO MOL IMMUNOL, (1988) 25 (11), 1201-1208.
CODEN: MOIMD5. ISSN: 0161-5890.
FS BA; OLD
LA English
AB Low and high affinity receptors for interleukin 2 were investigated on interleukin 2 (**IL-2**) **receptor** bearing cells by chemical cross-linking of 125I-labelled IL-2 to its receptor, or membrane proteins associated with the IL-2 binding sites. SDS-PAGE analysis of the cross-linked complexes of the murine CTLL 16 cells and human T-blasts, which bear high and low affinity IL-2 receptors, showed three distinct bands. The fastest of those three bands ran in parallel to the single band of 65-70 kDa found on the only low affinity receptor bearing mouse T-lymphoma Eb, which is thought to be one .beta.-chain (55 kDa IL-2 binding protein) and one IL-2. Both upper bands ran in parallel with those produced by the 2C8 clone of the NK-**like** cell line YT which lacks the 55 kDa binding protein and bears only a single class of receptors with an intermediate affinity. Internalisation studies using CTLL 16 cells revealed that all three bands disappeared under conditions allowing receptor internalisation. Low and high affinity binding sites of CTLL 16 cells were destroyed by trypsinisation and the IL-2 binding properties of the cells were regenerated in parallel with the reappearance of all bands. These results show in addition to the .beta.-chain (55 kDa binding protein) and the .alpha.-chain 75 kDa binding protein, an IL-2 membrane protein complex with an apparent mol. wt of 115 kDa in CTLL 16 cells. They are the first direct indication of a putative .**gamma** .-**chain** of the high affinity **IL-2**

L4 ANSWER 1 OF 27 MEDLINE
AN 1999145045 MEDLINE
DN 99145045
TI Human peripheral blood mononuclear cells express gonadotropin-releasing hormone (GnRH), GnRH receptor, and **interleukin-2 receptor gamma-chain** messenger ribonucleic acids that are regulated by GnRH in vitro.
AU Chen H F; Jeung E B; Stephenson M; Leung P C
CS Department of Obstetrics and Gynecology, National Taiwan University Hospital, Taipei.
SO JOURNAL OF CLINICAL ENDOCRINOLOGY AND METABOLISM, (1999 Feb) 84 (2) 743-50.
Journal code: HRB. ISSN: 0021-972X.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals; Cancer Journals
EM 199904
EW 19990404
AB The hypothalamic decapeptide, GnRH, plays a critical role in human reproduction. In addition to the well known effects of GnRH on pituitary cells, there is evidence supporting the presence of GnRH-binding sites in tissues other than pituitary cells, including lymphocytes. In addition, a GnRH-**like** substance has been found to be secreted from lymphoid cells. However, the precise nature of GnRH secretion and binding in immune cells has not been fully established. In this study, we used the RT-PCR method to examine the expression and regulation of GnRH, GnRH receptor (GnRHR), and **interleukin-2 receptor gamma-chain** messenger ribonucleic acids (mRNAs) in human peripheral blood mononuclear cells. It was found that human mononuclear cells expressed GnRH and GnRHR mRNAs. Nucleotide sequences of these mRNAs are identical to their hypothalamic and pituitary counterparts, respectively. In addition, GnRH and GnRHR mRNA expressions in peripheral blood mononuclear cells are regulated by GnRH and its synthetic analogs in vitro. Treatment with various concentrations of GnRH (10(-5)-10(-11) mol/L) increased GnRHR mRNA expression in a dose-dependent manner (maximal level is 158% of the untreated control value at 10(-8) mol/L GnRH; $P < 0.05$), but reduced GnRH mRNA levels to 69% of the untreated control value at 10(-9) mol/L GnRH ($P < 0.05$). Cotreatment of GnRH with a GnRH antagonist blocked these regulatory effects, indicating the receptor-mediated nature of the GnRH action. Both GnRH and GnRH agonist stimulated **interleukin-2 receptor gamma-chain** mRNA in a dose-dependent manner, indicating that GnRH may be involved in lymphocyte activation. In summary, these observations suggest that mRNAs encoding the pituitary form of GnRHR and the hypothalamic form of GnRH are also expressed in human peripheral blood mononuclear cells. The endogenous production of GnRH by lymphocytes may act as an autocrine or paracrine factor to regulate immune functions. Because of the presence of GnRHR on lymphocytes, exogenous GnRH analog therapy may have an impact on the immune system through these receptors.

L4 ANSWER 2 OF 27 MEDLINE
AN 1998166093 MEDLINE
DN 98166093

TI Interleukin 9 a[redacted]its receptor: an overview of s[redacted]cture and function.
AU Demoulin J B; R[redacted]uld J C
CS Ludwig Institute for Cancer Research and Experimental Medicine Unit, Catholic University of Louvain, Brussels, Belgium.
SO INTERNATIONAL REVIEWS OF IMMUNOLOGY, (1998) 16 (3-4) 345-64. Ref: 79
Journal code: IRI. ISSN: 0883-0185.
CY Switzerland
DT Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LA English
FS Priority Journals
EM 199806
EW 19980602
AB Interleukin-9 (IL-9) is a multifunctional cytokine produced by activated TH2 clones in vitro and during TH2-**like** T cell responses in vivo. Although IL-9 was initially described as a T cell growth factor, its role in T cell responses is still unclear. While freshly isolated normal T cells do not respond to IL-9, this cytokine induces the proliferation of murine T cell lymphomas in vitro, and in vivo overexpression of IL-9 results in the development of thymic lymphomas. In the human, the existence of an IL-9 mediated autocrine loop has been suggested for some malignancies such as Hodgkin's disease. Various observations indicate that IL-9 is actively involved in mast cells responses by inducing the proliferation and differentiation of these cells. Other potential biological targets for IL-9 include B lymphocytes, and hematopoietic progenitors, for which higher responses were observed with foetal or transformed cells as compared to normal adult progenitors. The IL-9 receptor is a member of the hemopoietin receptor superfamily and interacts with the **gamma chain** of the **IL-2 receptor** for signaling. Signal transduction studies have stressed the role of the Jak-STAT pathway in various IL-9 bioactivities, whereas the 4PS/IRS2 adaptor protein might also play a significant role in IL-9 signaling.

L4 ANSWER 3 OF 27 MEDLINE
AN 97353022 MEDLINE
DN 97353022
TI HTLV-I Tax trans-activation and cell growth signaling.
AU Nakamura M; Takasawa N; Ohbo K; Higashimura N; Ohtani K; Tanaka Y; Sugamura K
CS Human Gene Sciences Center, Tokyo Medical and Dental University, Japan.
SO LEUKEMIA, (1997 Apr) 11 Suppl 3 7-9.
Journal code: LEU. ISSN: 0887-6924.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals; Cancer Journals
EM 199710
EW 19971002
AB We have cloned two genes for cell surface molecules, capable of delivering the intracellular signals, which are modulated for their expression by Tax. One is the **gamma chain** of the interleukin-2 (**IL-2**) **receptor** which is suggested to be critical for IL-2-dependent growth of human T-cell leukemia virus type I (HTLV-I) infected cells. The **gamma chain** is upregulated by Tax, **like** the **IL-2 receptor** alpha chain. This upregulation may compensate the **gamma chain** downregulation after IL-2 binding, presumably resulting in more frequent growth of HTLV-I infected T cells. The other is gp34 that was initially identified as a molecule specifically

expressed on HT[redacted]I-infected T cells. gp34 has b[redacted] demonstrated to bind OX40 which belo[redacted]s to the tumor necrosis factor ([redacted]NF) receptor family. We found that HTLV-I Tax induces expression of gp34 and OX40, and that normal T cell transiently express both gp34 and OX40 upon antigenic stimulation. Collectively, it may be possible that HTLV-I-infected T cells are in a predisposition to growth due to modulated expression by HTLV-I Tax of gp34/OX40 and the **gamma chain**.

L4 ANSWER 4 OF 27 MEDLINE
AN 97321053 MEDLINE
DN 97321053
TI Chromosome mapping and expression of the human interleukin-13 receptor.
AU Guo J; Apiou F; Mellerin M P; Lebeau B; Jacques Y; Minvielle S
CS INSERM U211, Institut de Biologie, Nantes, France.
SO GENOMICS, (1997 May 15) 42 (1) 141-5.
Journal code: GEN. ISSN: 0888-7543.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
OS GENBANK-Y08768
EM 199709
EW 19970902
AB Interleukin-13 (IL-13) is a cytokine secreted by activated T cells and shares most but not all biological activities with interleukin-4 (IL-4). Both cytokines play an important role as a switch factor directing synthesis of IgE; they act on monocytes and endothelial cells, but unlike IL-4, IL-13 does not act on T cells. These cytokines have both common and distinct components in their respective receptors. Based on sequence similarity shared by cytokine receptor family members, we have identified a cDNA encoding the human IL-13 receptor (IL-13R). This cDNA was used to examine the pattern of IL-13R mRNA expression by Northern blot analyses of poly(A)+ RNA purified from different human tissues and cell lines. Among several myeloma cell lines analyzed, the U266 cell line was the only one found to express IL-13R transcripts. This cell line is also the only one described as producing IgE. The IL-13R gene was mapped to chromosome Xq24 by in situ hybridization. Interestingly, this locus is near that of the CD40 ligand gene, the product of which is also involved, **like** IL-13, in proliferation and IgE isotype switching of human B cells. The human IL-13R gene maps between two cytokine receptor genes located on the chromosome arm Xq region: the **interleukin-2 receptor gamma chain** gene (Xq13.1) and the interleukin-9 receptor gene (Xq28). The lack of nucleotide sequence similarity suggests unrelated evolutionary pathways between these receptor genes.

L4 ANSWER 5 OF 27 MEDLINE
AN 96399343 MEDLINE
DN 96399343
TI Regulation of **interleukin-2 receptor gamma chain** mRNA expression in human monocytic cell line THP-1.
AU Yanai H; Yoshino T; Takahashi K; Ninomiya Y; Akagi T
CS Department of Pathology, Okayama University Medical School, Japan.
SO ACTA MEDICA OKAYAMA, (1996 Jun) 50 (3) 145-50.
Journal code: 12M. ISSN: 0386-300X.
CY Japan
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199702
EW 19970204
AB The **interleukin-2 receptor** (IL-2R)

gamma chain (g[redacted]a c chain) is shared by IL-4R, [redacted]-7R, IL-9R, and IL-[redacted]R and plays an important role in regulation of the immune system. However, its regulation in monocytic cell lines has not been well clarified. We examined the expression and regulation of the IL-2R alpha, IL-2R beta, gamma c chain, IL-4R and IL-7R mRNA in a human monoblastic leukemia cell line, THP-1. Unstimulated THP-1 cells constitutively expressed a low level of gamma c chain and IL-4R mRNA. Phorbol myristate acetate (PMA) induced macrophage-**like** differentiation and up-regulated the gamma c chain mRNA expression in THP-1 cells. This effect of PMA was suppressed by the protein kinase inhibitors H-7 and staurosporine. PMA did not affect the expression of the other IL-R mRNAs examined. 1 alpha, 25(OH)2D3 and interferon-gamma also induced differentiation of THP-1 cells, but these reagents did not affect the expression of the IL-R mRNAs in THP-1 cells. These findings suggest that the expression of the gamma c chain mRNA is regulated by the PMA-dependent pathway and is not associated with that of the other IL-R mRNAs.

L4 ANSWER 6 OF 27 MEDLINE
AN 96210005 MEDLINE
DN 96210005
TI Cloning of human Stat5B. Reconstitution of interleukin-2-induced Stat5A and Stat5B DNA binding activity in COS-7 cells.
AU Lin J X; Mietz J; Modi W S; John S; Leonard W J
CS Laboratory of Molecular Immunology, NHLBI, National Institutes of Health, Bethesda, Maryland 20892, USA.
SO JOURNAL OF BIOLOGICAL CHEMISTRY, (1996 May 3) 271 (18) 10738-44. Journal code: HIV. ISSN: 0021-9258.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals; Cancer Journals
OS GENBANK-U43185; GENBANK-U47686
EM 199609
AB We have isolated a second human Stat5 cDNA, Stat5B, and demonstrated that the genes encoding both Stat5A and Stat5B are located at chromosome 17q11.2. Both genes were constitutively transcribed in peripheral blood lymphocytes. By using specific antisera, we demonstrated that both Stat5A and Stat5B are activated by interleukin-2 (IL-2) in peripheral blood lymphocytes, natural killer-**like** YT leukemia cells, and human T cell lymphotropic virus type I-transformed MT-2 T cells. In COS-7 cells, which constitutively express the Janus family tyrosine kinase Jak1, reconstitution of IL-2-induced Stat5A and Stat5B DNA binding activities was dependent on the coexpression of Jak3 along with the **IL-2 receptor** beta chain and the common cytokine receptor **gamma-chain**. This IL-2-induced Stat5 activation was dependent on the presence of either of two tyrosines (Tyr-392 or Tyr-510) in the **IL-2 receptor** beta chain, indicating that either of these two tyrosines can serve as a docking site. Moreover, we demonstrated that human Stat5 activation is also dependent on Tyr-694 in Stat5A and Tyr-699 in Stat5B, indicating that these tyrosines are required for dimerization. The COS-7 reconstitution system described herein provides a valuable assay for further elucidation of the IL-2-activated JAK-STAT pathway.

L4 ANSWER 7 OF 27 MEDLINE
AN 96082177 MEDLINE
DN 96082177
TI The insulin receptor substrate-1-related 4PS substrate but not the interleukin-2R **gamma chain** is involved in interleukin-13-mediated signal transduction.
AU Wang L M; Michieli P; Lie W R; Liu F; Lee C C; Minty A; Sun X J; Levine A; White M F; Pierce J H
CS Laboratory of Cellular and Molecular Biology, National Institutes of

Health, Bethesda, MD 20892-4255, USA.
SO BLOOD, (1995 Dec 1) 86 (11) 4218-27.
Journal code: A8G. ISSN: 0006-4971.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals; Cancer Journals
EM 199603
AB Interleukin-13 (IL-13) induced a potent mitogenic response in IL-3-dependent TF-1 cells and DNA synthesis to a lesser extent in MO7E and FDC-P1 cells. IL-13 stimulation of these lines, **like** IL-4 and insulin-**like** growth factor-1 (IGF-1), resulted in tyrosine phosphorylation of a 170-kD substrate. The tyrosine-phosphorylated 170-kD substrate strongly associated with the 85-kD subunit of phosphoinositol-3 (PI-3) kinase and with Grb-2. Anti-4PS serum readily detected the 170-kD substrate in lysates from both TF-1 and FDC-P1 cells stimulated with IL-13 or IL-4. These data provide evidence that IL-13 induces tyrosine phosphorylation of the 4PS substrate, providing an essential interface between the IL-13 receptor and signaling molecules containing SH2 domains.
IL-13 and IL-4 stimulation of murine L cell fibroblasts, which endogenously express the IL-4 receptor (IL-4R alpha) and lack expression of the **IL-2 receptor** gamma subunit (IL-2R gamma), resulted in tyrosine phosphorylation of insulin receptor substrate-1 (IRS-1)/4PS. Enhanced tyrosine phosphorylation of IRS-1/4PS was observed in response to IL-4, but not IL-13 treatment of L cells transfected with the IL-2R **gamma chain**. These results indicate that IL-13 does not use the IL-2R gamma subunit in its receptor complex and that expression of IL-2R gamma enhances, but is not absolutely required for mediating IL-4-induced tyrosine phosphorylation of IRS-1/4PS.

L4 ANSWER 8 OF 27 MEDLINE
AN 95363664 MEDLINE
DN 95363664
TI delta 9-Tetrahydrocannabinol (THC) causes the variable expression of IL2 receptor subunits.
AU Zhu W; Igarashi T; Friedman H; Klein T W
CS Department of Medical Microbiology and Immunology, University of South Florida, College of Medicine, Tampa, USA..
NC DA03646 (NIDA)
SO JOURNAL OF PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS, (1995 Aug) 274 (2) 1001-7.
Journal code: JP3. ISSN: 0022-3565.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199511
AB Previously, we reported that the cannabinoid delta 9-tetrahydrocannabinol (THC) suppressed interleukin 2 (IL2)-induced proliferation of a cloned, natural killer-**like** cell line (NKB61A2) and decreased the number of high- and intermediate-affinity IL2 binding sites. However, the surface expression of **interleukin 2 receptor** alpha (IL2R alpha) chain, as measured by flow cytometry, was increased rather than decreased by THC treatment. This suggested that the drug-induced deficiency in IL2 binding and cell activation involved a defect in the cell-surface expression of IL2R subunits other than the alpha chain. Because the IL2 receptor complex is composed of alpha, beta and gamma chains, we examined the effect of THC treatment on the expression of these chains. In a result consistent with our previous findings, we observed

that treatment [redacted] NKB61A2 cells with THC increas[redacted] the cellular immunoprecipitable IL2R alpha protein (p55) and mRNA. Furthermore, the cellular production of IL2R beta chain protein (p75) and mRNA, determined by immunoprecipitation and Northern blotting, respectively, was also increased. The mRNA stability assay showed that THC increased the stability of IL2 beta mRNA, and nuclear run-on experiments suggested that the increase in subunit production was not due to a drug effect on gene transcription. The IL2R **gamma chain** was also affected by THC treatment in that Northern blotting studies showed a drug-induced decrease in the cellular level of **gamma chain** mRNA. In addition, THC treatment decreased the 125I-labeled IL2 internalization under high-affinity binding conditions.(ABSTRACT TRUNCATED AT 250 WORDS)

L4 ANSWER 9 OF 27 MEDLINE
AN 95190385 MEDLINE
DN 95190385
TI Interleukin-9 and its receptor: involvement in mast cell differentiation and T cell oncogenesis.
AU Renauld J C; Kermouni A; Vink A; Louahed J; Van Snick J
CS Ludwig Institute for Cancer Research, Catholic University of Louvain, Brussels, Belgium..
SO JOURNAL OF LEUKOCYTE BIOLOGY, (1995 Mar) 57 (3) 353-60. Ref: 61
Journal code: IWY. ISSN: 0741-5400.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LA English
FS Priority Journals; Cancer Journals
EM 199506
AB Interleukin-9 (IL-9) is a multifunctional cytokine produced by activated TH2 clones in vitro and during TH2-**like** T cell responses in vivo. The IL-9 receptor is a member of the hemopoietin receptor superfamily and interacts with the **gamma chain** of the **IL-2 receptor** for signal transduction. Various observations indicate that IL-9 is actively involved in mast cell responses by inducing the proliferation and differentiation of these cells. The role of IL-9 in T cell responses is less clear. Although freshly isolated normal T cells do not respond to IL-9, this cytokine induces the proliferation of murine T cell lymphomas in vitro and in vivo overexpression of IL-9 results in the development of thymic lymphomas. In the human, the existence of an IL-9-mediated autocrine loop has been suggested for some malignancies such as Hodgkin's disease. Other potential biological targets for IL-9 include B lymphocytes, hematopoietic progenitors, and immature neuronal cell lines.

L4 ANSWER 10 OF 27 MEDLINE
AN 94364468 MEDLINE
DN 94364468
TI Interleukin 2-induced activation of JAK3: possible involvement in signal transduction for c-myc induction and cell proliferation.
AU Asao H; Tanaka N; Ishii N; Higuchi M; Takeshita T; Nakamura M; Shirasawa T; Sugamura K
CS Department of Microbiology, Tohoku University School of Medicine, Sendai, Japan.
SO FEBS LETTERS, (1994 Sep 5) 351 (2) 201-6.
Journal code: EUH. ISSN: 0014-5793.
CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals; Cancer Journals
EM 199412
AB We have investigated the role of JAK3 in interleukin 2 (IL-2)-induced signal transduction with a human T cell line, ED40515(-), lacking expression of the **IL-2 receptor**

gamma chain and [redacted]s sublines transfected with wi[redacted]type or mutant cDNAs of the **IL-2 receptor gamma chain**. Our results demonstrated that the membrane-proximal cytoplasmic region, encompassing the src homology region 2 (SH2)-**like** subdomain, of the **gamma chain** is essential for association and activation of JAK3. Furthermore, IL-2-induced activation of JAK3 paralleled induction of the c-myc gene and DNA synthesis but not induction of the c-fos and c-jun genes. These results support the hypothesis that JAK3 plays a pivotal role in the **IL-2 receptor**-mediated signals for cell growth.

L4 ANSWER 11 OF 27 MEDLINE
AN 93293887 MEDLINE
DN 93293887
TI Characterization of the human **interleukin-2 receptor gamma chain** gene.
AU Noguchi M; Adelstein S; Cao X; Leonard W J
CS Section of Pulmonary and Molecular Immunology, National Heart, Lung, and Blood Institute, National Institutes of Health, Bethesda, Maryland 20892.
SO JOURNAL OF BIOLOGICAL CHEMISTRY, (1993 Jun 25) 268 (18) 13601-8. Journal code: HIV. ISSN: 0021-9258.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals; Cancer Journals
OS GENBANK-L12176; GENBANK-L12177; GENBANK-L12178; GENBANK-L12179; GENBANK-L12180; GENBANK-L12181; GENBANK-L12182; GENBANK-L12183
EM 199309
AB The interleukin-2 (**IL-2**) **receptor gamma chain** is an essential component of high and intermediate affinity IL-2 receptors (IL-2Rs), playing critical roles for ligand binding and internalization. We report here the isolation and characterization of the genomic locus for human IL-2R gamma, which, **like** IL-2R beta, is a member of the cytokine receptor superfamily. The IL-2R gamma gene is composed of eight exons and seven introns and spans approximately 4.2 kilobases. Analogous to the IL-2R beta gene, the two pairs of conserved cysteines typical of cytokine receptor superfamily proteins are located in adjacent exons, and the conserved WSXWS motif is located in the exon preceding the one that encodes the transmembrane domain and a small part of the cytoplasmic domain. In each gene, the remainder of the cytoplasmic domain is encoded by the final two exons. Southern blot analysis suggests that IL-2R gamma is encoded by a single copy gene. Cross-hybridizing sequences were detected in DNA derived from a number of other mammalian species but not from yeast. Primer extension analysis and ribonuclease protection assays revealed that there are three principal transcription initiation sites located 32-38 nucleotides 5' to the translation initiation AUG codon. These sites are upstream of the 5' end of the published IL-2R gamma cDNA sequence. The region 5' to the transcription initiation sites exhibited promoter activity when cloned upstream of the luciferase reporter gene. With this study, the organization of the genes encoding all three chains (alpha, beta, and gamma) of the **IL-2 receptor** has been determined and promoters for each identified.

L4 ANSWER 12 OF 27 MEDLINE
AN 89127311 MEDLINE
DN 89127311
TI The high affinity **interleukin 2 receptor**: evidence for three distinct polypeptide chains comprising the high affinity **interleukin 2 receptor**.
AU Herrmann T; Diamantstein T

CS Institut fur I[redacted]ologie, Klinikum Steglitz, Fre[redacted]Universitat, Berlin, F.R.G..
SO MOLECULAR IMMUNOLOGY, (1988 Nov) 25 (11) 1201-7.
Journal code: NG1. ISSN: 0161-5890.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals; Cancer Journals
EM 198905
AB Low and high affinity receptors for interleukin 2 were investigated on interleukin 2 (**IL-2**) **receptor** bearing cells by chemical cross-linking of 125I-labelled IL-2 to its receptor, or membrane proteins associated with the IL-2 binding sites. SDS-PAGE analysis of the cross-linked complexes of the murine CTLL 16 cells and human T-blasts, which bear high and low affinity IL-2 receptors, showed three distinct bands. The fastest of those three bands ran in parallel to the single band of 65-70 kDa found on the only low affinity receptor bearing mouse T-lymphoma Eb, which is thought to be one beta-chain (55 kDa IL-2 binding protein) and one IL-2. Both upper bands ran in parallel with those produced by the 2C8 clone of the NK-**like** cell line YT which lacks the 55 kDa binding protein and bears only a single class of receptors with an intermediate affinity. Internalisation studies using CTLL 16 cells revealed that all three bands disappeared under conditions allowing receptor internalisation. Low and high affinity binding sites of CTLL 16 cells were destroyed by trypsinisation and the IL-2 binding properties of the cells were regenerated in parallel with the reappearance of all bands. These results show in addition to the beta-chain (55 kDa binding protein) and the alpha-chain 75 kDa binding protein, an IL-2 membrane protein complex with an apparent mol. wt of 115 kDa in CTLL 16 cells. They are the first direct indication of a putative **gamma-chain** of the high affinity **IL-2 receptor**.

L4 ANSWER 13 OF 27 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1999:136034 BIOSIS
DN PREV199900136034
TI Human peripheral blood mononuclear cells express gonadotropin-releasing hormone (GnRH), GnRH receptor, and **interleukin-2 receptor gamma-chain** messenger ribonucleic acids that are regulated by GnRH in vitro.
AU Chen, Hsin-Fu; Jeung, Eui-Bae; Stephenson, Mary; Leung, Peter C. K. (1)
CS (1) Dep. Obstetrics Gynecology, 4490 Oak St., Vancouver, BC V6H 3V5 Canada
SO Journal of Clinical Endocrinology & Metabolism, (Feb., 1999) Vol. 84, No. 2, pp. 743-750.
ISSN: 0021-972X.
DT Article
LA English
AB The hypothalamic decapeptide, GnRH, plays a critical role in human reproduction. In addition to the well known effects of GnRH on pituitary cells, there is evidence supporting the presence of GnRH-binding sites in tissues other than pituitary cells, including lymphocytes. In addition, a GnRH-**like** substance has been found to be secreted from lymphoid cells. However, the precise nature of GnRH secretion and binding in immune cells has not been fully established. In this study, we used the RT-PCR method to examine the expression and regulation of GnRH, GnRH receptor (GnRHR), and **interleukin-2 receptor gamma-chain** messenger ribonucleic acids (mRNAs) in human peripheral blood mononuclear cells. It was found that human mononuclear cells expressed GnRH and GnRHR mRNAs. Nucleotide sequences of these mRNAs are identical to their hypothalamic and pituitary counterparts, respectively. In addition, GnRH and GnRHR mRNA expressions in peripheral blood mononuclear cells are regulated by GnRH and its synthetic analogs in

vitro. Treatme[redacted]ith various concentrations of [redacted]H (10-5-10-11 mol/L) increased GnRHR mRNA expression in a dose-dependent manner (maximal level is 158% of the untreated control value at 10-8 mol/L GnRH; P < 0.05), but reduced GnRH mRNA levels to 69% of the untreated control value at 10-9 mol/L GnRH (P < 0.05). Cotreatment of GnRH with a GnRH antagonist blocked these regulatory effects, indicating the receptor-mediated nature of the GnRH action. Both GnRH and GnRH agonist stimulated **interleukin-2 receptor gamma-chain** mRNA in a dose-dependent manner, indicating that GnRH may be involved in lymphocyte activation. In summary, these observations suggest that mRNAs encoding the pituitary form of GnRHR and the hypothalamic form of GnRH are also expressed in human peripheral blood mononuclear cells. The endogenous production of GnRH by lymphocytes may act as an autocrine or paracrine factor to regulate immune functions. Because of the presence of GnRHR on lymphocytes, exogenous GnRH analog therapy may have an impact on the immune system through these receptors.

L4 ANSWER 14 OF 27 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1998:93609 BIOSIS
DN PREV199800093609
TI Advantages of a new Taq DNA polymerase in multiples PCR and time-release PCR.
AU Kebelmann-Betzing, C. (1); Seeger, K.; Dragon, S.; Schmitt, G.; Moericke, A.; Schild, T. A.; Henze, G.; Beyermann, B.
CS (1) Dep. Pediatr. Oncol./Hematol., Virchow Med. Cent. Charite, Humboldt-Univ., Augustenburger Platz 1, 13353 Berlin Germany
SO Biotechniques, (Jan., 1998) Vol. 24, No. 1, pp. 154-158. ISSN: 0736-6205.
DT Article
LA English
AB Extensive diagnostic and scientific investigations are often restricted by limited availability of material. Therefore, methods **like** multiplex PCR strategies are needed to conserve as much sample as possible. Unfortunately, the establishment of such procedures poses several difficulties. Here we describe the advantages of a new enzyme, AmpliTaq Gold DNA Polymerase, in multiplex and time-release PCR. The application of this thermostable recombinant Taq DNA polymerase allows the specific amplification of DNA/cDNA targets with very high sensitivity. With our protocol, the specific amplification of 13 different cDNAs of cytokines and cytokine receptors can be realized in three multiplex PCRs (IL-2Ralpha, IL-2/15Rbeta, gammac-chain, IL-4 and IL-4Ralpha; IL-10, IL-15 and IL-15Ralpha; and IL-2, IFNgamma, IL-7, IL-7Ralpha and IL-9Ralpha). The novel application of AmpliTaq Gold DNA Polymerase in a time-release PCR protocol allows specific amplification of target DNA/cDNA when only limited amounts of material are available or only low-copy-number DNA/cDNA is suspected. No IL-9 cDNA can be detected in peripheral blood mononuclear cells (PBMC) in the absence of any stimulation, thus it was difficult to amplify this target with routine PCR protocols. Here we demonstrate the reliable and reproducible amplification of IL-9 cDNA in the Hodgkin's lymphoma cell line KM-H2, in PBMC and in stimulated PBMC. Results with AmpliTaq gold DNA Polymerase were more sensitive and specific compared with AmpliTaq DNA Polymerase, with and without manual hot-start procedure.

L4 ANSWER 15 OF 27 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1997:340515 BIOSIS
DN PREV199799639718
TI IL-15 is chemotactic for natural killer cells and stimulates their adhesion to vascular endothelium.

AU Allavena, P. (1) Giardina, G.; Bianchi, G.; Mantovani, A.
CS (1) Ist. Ricerche Farmacologiche Mario Negri, Via Eritrea 62, 20157 Milan Italy
SO Journal of Leukocyte Biology, (1997) Vol. 61, No. 6, pp. 729-735. ISSN: 0741-5400.
DT Article
LA English
AB Interleukin-15 (IL-15) is a recently described cytokine with IL-2-**like** stimulating activities on T lymphocytes and natural killer (NK) cells. IL-15 mediates its function through the beta- and gamma-chains of the **IL-2 receptor**. In this work, we have investigated the effect of IL-15 on the directional migration of NK cells in chemotaxis assays and on the ability of NK cells to bind to vascular endothelium. IL-15 (10-20 ng/mL) had chemotactic effects on freshly isolated resting NK cells as well as on long-termed IL-2-cultured NK cells. A checkerboard experiment demonstrated that migration in response to IL-15 was observed only in the presence of a positive gradient (chemotaxis). Overnight treatment of freshly isolated NK cells with IL-15 (10-20 ng/mL) augmented their binding to cultured endothelial cells (EC) in vitro, especially to resting EC. IL-15-activated NK cells bound to resting and tumor necrosis factor-activated EC by use of LFA-1/ICAM-1 and VLA-4/VCAM-1 adhesion pathways, essentially as untreated NK cells do. The fact that IL-15 increased NK cell binding to ICAM-1-transfected NIH-3T3 fibroblasts, together with the finding that IL-15 did not increase binding to extracellular matrix proteins, where the major molecules involved are VLA proteins, indicated that IL-15 primarily stimulates LFA-1-dependent adhesion. By increasing NK cell adhesion to vascular endothelium and migratory response, IL-15 is an important determinant of NK cell recruitment in tissues.

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(FILE 'HOME' ENTERED AT 16:15:17 ON 27 DEC 1999)

FILE 'MEDLINE, BIOSIS' ENTERED AT 16:15:38 ON 27 DEC 1999
L1 14063 S (INTERLEUKIN 2 RECEPTOR) OR (IL-2 RECEPTOR)
L2 412 S L1 AND GAMMA CHAIN
L3 0 S L2 AND ORPHAN
L4 27 S L2 AND LIKE
L5 142 S L1 AND GAMMA-C

=> s l5 and orphan

L6 0 L5 AND ORPHAN